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WHICH RECOVERED AFTER REPEATED PUNCTURES OF
THE PLEURAL SAC.

By THEOPHILUS THOMPSON, M.D.,

VISITING PHYSICIAN TO THE HOSPITAL FOR CONSUMPTION AND
DISEASES OF THE CHEST.

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READ APRIL 23RD, 1844.

ALTHOUGH a collection of pus within the pleural sac is by no means an infrequent occurrence, there is much variety of opinion respecting its appropriate treatment; and it is therefore desirable to record every case the details of which may tend to establish definite rules of practice.

In the summer of 1843 I was requested by Mr. Robarts, of Great Coram-street, to visit with him a little boy, between five and six years of age, of slender frame, but good constitution, who had been placed under his care about two months previously. At that time his symptoms were loss of appetite and strength, interrupted sleep, a rapid pulse, and other febrile affections, which did not yield to treatment, and in about a fortnight became associated with a short cough and pain of the right side on moving.

The respiratory murmur on this side was deficient, and the sound elicited by percussion dull. Leeches and a blister had been applied, and a course of calomel adopted, but without any satisfactory result.

When I first saw the patient, on the 25th of June, I found him much reduced in flesh and strength, lying on the right side, breathing rapidly, with a hot skin, quick pulse, much thirst, and scanty urine.

On admeasurement, this side was found about an inch larger than the left: its intercostal spaces prominent, the sound yielded by percussion dull, and the respiratory murmur inaudible almost as high as the clavicle. Mercurial ointment, quinine, and decoction of chimaphila, were tried for a few days.

On the 27th, the urine was slightly increased in quantity, but the effusion into the chest was apparently greater, the respiration rapid, and the strength declining. The apex of the heart was felt beating beyond the line of the nipple, and the effusion was obviously too considerable to authorize any expectation of its being absorbed through the influence of medicine.

With a view to obtain an absolute demonstration of its existence and nature, an exploratory needle was introduced into the side at the most prominent part; and pus having been observed in the groove of the instrument, the operation of paracentesis was at once performed.

An incision was first made through the stretched skin, in order to secure a valvular aperture; a hydrocele trochar was then introduced through the fourth

intercostal space, and fourteen ounces of greenish-yellow pus were withdrawn, pressure being at the same time made from below upwards, as recommended by Dr. J. C. B. Williams, with a view to assist in accommodating the chest to its diminished contents. Owing to the thickness of the matter, the introduction of the probe through the canula was occasionally necessary to remove obstructions. When the above-mentioned quantity of fluid had been removed, the canula was withdrawn, the wound carefully closed, and a bandage applied.

The mercurial ointment and decoction of winter-green were continued, and two grains of iodide of potassium, with five of tartarized iron, administered twice a-day. The boy was much relieved by the operation, slept better, and the urine increased in quantity. The respiratory murmur, blending with the rubbing sound of the surfaces of the pleura, could be heard between the second and third ribs of the right side.

On the 30th of June, the number of the respirations was 50 in a minute, and the right side of the chest measured half an inch less in circumference than before the puncture; but, as the respiratory murmur was becoming less distinct between the second and third ribs, it was judged expedient to repeat the operation.

The trochar was introduced about an inch behind the former cicatrix; the skin having been drawn downwards, to secure its acting subsequently as a valve. About a pint of matter was withdrawn, which

was not foetid, but thicker than on the first occasion, and requiring the use of the probe to remove obstructions. The flow was promoted whenever the patient uttered any exclamation. The ointment and medicine were continued.

This operation was succeeded by marked relief: the number of respirations in the minute being, on the 2nd of July, reduced to 40, the sound on percussion becoming clearer, and the respiratory murmur audible as far as the fourth rib, and the patient's strength improving.

After this date, however, notwithstanding the continued use of wintergreen, iodide of potassium, citrate of iron, and mercurial ointment, the dullness of sound on percussion again extended; the respirations were increased to 56 in a minute; irritable cough returned, and the state of the patient became altogether less favourable.

On the 10th of July, a full-sized trochar was introduced between the fifth and sixth ribs, and twenty ounces of pus were removed. The pulse improved as soon as the chest was relieved. The next day respiration was audible down to the fifth rib, without any friction sound in the pleura, and the dull sound on percussion was confined to a circle, about two inches in diameter, surrounding the puncture. The patient was now allowed a more liberal diet; and, in addition to the other remedies, half a grain of calomel was given every night and morning.

In a few days, however, the breathing again became hurried, and the other signs of effusion increased;

and, on the 21st of July, it was deemed necessary to perform the operation for the fourth time. Without previously drawing down the skin, the trochar was introduced in the sixth intercostal space, an inch anterior to the last puncture, and twenty-two ounces of thick matter were rapidly removed. The patient was directed to take a powder of calomel and quinine, and a draught containing ammonia, twice a-day; but the powders were withdrawn two days afterwards, on account of intestinal irritation.

During the following week he improved in strength; the average number of the respirations was less than 40, of the pulse 100 in a minute, and the excess in girth of the right side of the chest, over the left, was only half an inch.

On the 27th, there was a little inflammation of the skin, near the puncture, which, although for some days perfectly healed, on the 28th re-opened spontaneously, and within twenty-four hours gave exit to about four ounces of pus.

After three days, the discharge ceased; but above the site of the two last punctures a swelling was found, about two inches in length, at the posterior end of which an aperture discharging matter appeared, whilst the anterior orifice closed.

On the 16th of August, both openings were discharging, the anterior spontaneously, the posterior when pressed; and the latter orifice assumed a caruncular appearance. The pectoral and general symptoms had abated. Dullness of sound on percussion was limited to a circle about two inches in diameter,

around the anterior opening; the right side of the chest moved in respiration, and was rather less than the left. The improvement in the local condition was accompanied with general amendment of health, so that, in the month of September, the patient was enabled to walk out. The contraction of the right side of the chest proceeded till the month of November, when it measured an inch and three-quarters less than the left; but subsequently the right side again increased, till the difference was reduced to an inch. In December, the discharge, which had previously averaged two ounces in twenty-four hours, was reduced to an ounce, and after the application of ung. hydr. nitr. ox. to the opening for a few days, ceased altogether, but returned on the discontinuance of the ointment.

It was obvious, on the one hand, that any attempt to close the orifice would lead to injurious results, and on the other, that the fistulous opening might remain for life, unless some measure could be adopted to effect the gradual but complete emptying of the sac, and the approximation of its sides. We therefore determined cautiously to dilate the opening, and with this view Mr. Robarts prepared a plug, consisting of a piece of sponge, which had previously been firmly tied round with packthread, and saturated with wax.

This plug was introduced at night, on the 31st of December, and when removed on the 2nd of January, was followed by a copious discharge of pus. In a few days, the aperture having again contracted,

another plug was introduced, and the next day withdrawn, when about six ounces of pus were discharged in a jet.

As the results of this plan proved so encouraging, the plug was again introduced on the 22nd of January, and removed the next day, when half an ounce of matter, still inoffensive, was removed. Mr. Lane, who was so obliging as to examine this matter for me, with the microscope, reported as follows:—"The fluid appears to be a very perfect and genuine specimen of pus, the globules peculiar to that fluid are remarkably distinct and unbroken."

After this period, there was no fresh discharge, the orifice permanently healed, and the boy has remained perfectly well.

Several reflections naturally arise from the consideration of the facts now related.

Serous effusion into the pleura, when not highly albuminous, is frequently removed with little assistance from medical treatment; but in cases of pyothorax of any extent, we have no reason to expect a favourable issue, unless decided measures are adopted.

It becomes, therefore, an important question whether we should attempt the removal of the effusion by the use of medicines believed to promote absorption, or have early recourse to the operation of paracentesis.

In the instance now recorded, mercury was for a time employed, because it has been recommended in such cases, on high authority; but it was used

in vain ; and probably that medicine will generally prove useless, and even injurious, when pus in any considerable quantity is effused into the pleural sac.

Iodine and other remedies are not likely to be more efficacious ; and, therefore, whenever there are clear evidences of such effusion interfering with respiration and nutrition, the operation should be promptly performed.

When the fluid effused is serum, the whole quantity, although amounting, as in a case described by Dr. Archer,* even to eleven pints, may possibly be removed at once, without detriment ; but as the present case was considered one of true empyema or pyothorax, with the lung probably condensed, it was thought safer to remove only a portion of the matter at one time, and to repeat the operation as occasion might require—a precaution strongly recommended by the experience of Dupuytren.

We left no canula in the wound after the operation ; believing that, in such cases, the admission of air, especially if long continued, has a very injurious tendency. In an instructive example, which Dr. Stroud has related,† the use of a canula was followed, in about a week, by a change of the secretion from serum to pus, which, after a few days, assumed a very foetid character, and the patient, although young, and otherwise not in hopeless

* Transactions of King's and Queen's Coll. of Physicians, vol. i.

† Medical Quarterly Review, vol. i. p. 184.

circumstances, died. Similar results have followed the adoption of the same measure, in other instances, as in an interesting example described by Dr. Brugnon.*

It is an instructive fact, and corroborative of the opinion now offered, that the result has been favourable, in a very large proportion of instances, several of which are related by Le Faucheux, wherein a fistulous opening has formed, either spontaneously or in consequence of an operation; the favourable progress of such cases having been, apparently, attributable to the difficult transmission of air through the fistula.

Some patients have, it is true, recovered, notwithstanding the employment of the canula in the manner here deprecated; but a measure may be hazardous, without being necessarily or uniformly fatal; and where the lungs have been free from disease, it is difficult to discover other causes for the frequently unhappy results of the operation, except increase of the pleural inflammation, and decomposition of the enclosed matter, owing to the long-continued contact of atmospheric air.

Puncture of the thorax involves no circumstance of peculiar hazard; in the present example it was repeated four times with invariable relief, and without a single untoward circumstance—and when performed with proper precautions, it would be difficult to adduce instances of a contrary character.

A diversity of opinion has existed regarding the

* “ *Giornale per servire ai progressi della Patologia*,” t. ix. fasc. 25. 1838.

appropriate treatment of fistula following empyema. Some practitioners have recommended the injection of various liquids into the pleural sac; but an aggravation of the symptoms has frequently been the result. In a case detailed by Audouard, an increase of the quantity, and deterioration of the quality, of the effusion appeared to be produced by injections, although bland and unirritating. Attempts to produce cicatrization of the fistulous opening have proved even more detrimental; a truth well illustrated by Wendelstadt and Audouard, and confirmed by the present example. Such fistulous openings, when left to themselves, may remain for years, or even for life, as occurred in the person of Dr. Wendelstadt himself, in whom, after the lapse of many years, the cavity was large enough to contain a quart of fluid.*

A suppurating cavity, when of long duration, will continue to secrete pus, and its walls will not readily adhere. It is therefore very desirable to promote the gradual contraction of such a cavity; and this object was in the present case happily effected by the plan which Mr. Robarts judiciously conducted.

I cannot close this communication without remarking that it affords a striking illustration of the insidious manner in which empyema may occur, as well as of the precise and valuable diagnosis furnished by the physical signs of disease.

* Beschreibung eines Hydroth. Saccatus. Journal der Practischen Heilkunde, Band 72, p. 72.